CLAIMS

1. Method for determining an offset-reduced Hall voltage (Uh), and/or an offset voltage (UH,offset) of a Hall sensor (1), comprising:

applying a Hall sensor current (I) at a first and second taps (a1, a2, a3) of the Hall sensor (1), and determining a first Hall voltage (Uh1) at the third and fourth taps(a3, a4) displaced from the first and second taps(a1, a2, a5),

applying a second Hall sensor current modified relative to the first, and determining a second Hall voltage (Uh2), and

determining the Hall voltage (Uh) and/or Hall voltage offset (Uh,offset) from the first and second Hall voltages determined (Uh1, Uh2), characterized in that

the application of the second Hall current I is effected at taps that are spatially displaced from the first and/or second taps (a3, a4).

2. Method according to claim 1, wherein the second Hall voltage (Uh2) is effected at taps (a1, a2) that are spatially displaced from the taps (a3, a4) for determining the first Hall voltage (Uh1).

3. Method according to claim 2, wherein in order to determine the second Hall voltage (Uh2) this voltage is tapped at taps (a1, a2) for the application of the first Hall current(I), and the second Hall sensor current (I) is applied at taps for tapping the first Hall voltage (Uh1).

4. Method according to claim 3, wherein the compensated Hall voltage (Uh) is determined by the addition of the first and second Hall voltages (Uh1, Uh2).

5. Method according to claim 1, wherein the Hall voltage offset (Uh,offset) is determined by the subtraction of the first and second Hall voltages (Uh1, Uh2).

6. Method according to claim 1, wherein a reduced Hall voltage (Uh) is determined with a first linear arrangement of first through fifth taps (a1 - a5) to determine an angular component of the magnetic field B, and an additional Hall voltage is determined with a second linear arrangement of taps (a1, a2* - a5*) in an arrangement which is nonlinear and oriented at an angle relative to the first arrangement.

7. Method according to claim 1, wherein an interpolation of intermediate results is performed using taps arranged in a spatially nonlinear configuration.

8. An offset-reduced Hall sensor (1), comprising:

taps (a1 - a5) to tap or apply voltages and/or currents, and

a control device (C) to apply a first Hall sensor current (1) through a first central tap (a1), and two second taps (a2, a5) displaced relative to the first tap, and to determine a first Hall voltage (U1) on both sides of the first tap (a1) between a third and fourth tap (a1, a4) that are located between the first tap (a1) and fourth taps (a2, a5) - the arrangement comprising a first measurement system, characterized in that

the control device (C) has a switching device to apply a second Hall sensor current or the Hall sensor current (I) at taps that are spatially displaced relative to the first, second, and additional second taps (a1, a2, a5), and to tap a second Hall voltage (Uh2) at taps (a1, a2) that are spatially displaced relative to the third and fourth taps (a3, a4) – the arrangement comprising a second measurement system.

9. The hall sensor of claim 8, wherein the control device (C) has a switching device (C) to apply a second Hall sensor current (I) at the third and fourth taps (a3, a4), and to tap a second Hall voltage (Uh2) between the first and second or additional second taps (a1, a2, a5) - the arrangement comprising a second measurement system.

10. The hall sensor of claim 9, wherein the second and the additional second taps (a2, a5) are connected at a common terminal to apply the Hall sensor current (I), or to tap the Hall voltage (Uh2).

11. The hall sensor of claim 10, comprising a memory device (M) to store the first and/or second Hall voltage (Uh1, Uh2), and an analyzer (C) to determine an offset-compensated Hall voltage (Uh) from the Hall voltages (Uh1, Uh2) tapped under the conditions provided by the first and second different measurement systems.

12. The hall sensor of claim 11, wherein the taps (a1 - a5) are located in a plane spanned by the flow direction of the Hall sensor current (I) and of the magnetic field (B) to be detected, or in a plane parallel thereto in the manner of a vertical Hall sensor.

13. The hall sensor of claim 12, wherein

a first measurement group having mutually linear first through fourth taps (a1 - a5) forms a first measurement system and a second measurement system, and

a second measurement group forms a first and a second measurement system of the first through fourth taps (a1, $a3^*$ - $a5^*$) that are arranged linearly relative to each other and pivoted by an angle (α) relative to the first measurement group (a1 - a5) within the plane.

14. The hall sensor of claim 12, wherein

a plurality of second taps (a2, a2*, a2', a5, a5*, a5') displaced from the first tap (a1) are distributed around a circular first track (d1), and

a plurality of third taps (a3, a3*) and fourth taps (a4, a4*) displaced from the first tap (a1) are arranged on a second circular track (d2), the first track (d1) being further removed from the first tap (a1) than the second track (d2).

15. The hall sensor of claim 14, wherein

the number of taps (a2, a2*, a2', a5, a5*, a5') on the first track (d1) is greater than the number of taps (a3, a3*, a4, a4*) on the second track (d2), and

an analyzer (C) is provided to determine intermediate positions for additional positions on the second track (d2) without an existing tap (a3*).